Air Quality: A Quantitative Approach to Small and Large Particles

Post, Abigail (School: Hankinson Public School)

Purpose: To determine the effects of location, weather, and time of year on small and large air particles in a quantitative analysis. Procedure: Download Dylos software to record data with laser air particle counter. Go out to seven locations (Residential-Indoors, Residential-Outdoors, Public Park, Agricultural, Natural Grasslands, Nursing Home, Public-Indoors) and take three separate five minute samples with air particle counter for each location. Do this once a week, each morning and night on the same day. Continue to do so for eighteen weeks to complete testing. Conclusion: The nursing home had the lowest particle counts of any location I analyzed. The agricultural location had the highest particle counts of any location I analyzed. For small particle morning, 06/20/17 had the lowest overall air particle counts. The highest small particle morning count was recorded on 07/18/17. The lowest large particle morning count was on 06/20/17 and 08/15/17 had the highest. The lowest small particle night counts were on 07/03/17, the highest were on 08/30/17. For large particle night the lowest count was from 07/03/17 and the highest was from 08/30/17. The lowest humidity throughout the testing came from the public-indoors location. The highest average humidity came from the agricultural location. The lowest average temperature came from the agricultural location and the highest was at the nursing home. All three indoor locations (Residential-Indoors, Nursing Home, and Public-Indoors) did not document any wind speeds. The natural grasslands location, with an average wind speed of 2.7 mph, had the highest average wind speed.

Awards Won: